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Conflicts in Science and Faith: Ministers Beware

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Introduction

The aim of this paper[1] is a modest one, albeit in parts provocative. As the title suggests, it is an attempt to put in place a few 'Danger—Warning' signs in some areas where Christians, and in particular Christian ministers, need to tread a little warily in considering the relationship between the scientific enterprise and the Christian faith. I will be focusing on those issues which are seen to have some apologetic value—where perhaps something is advocated by the scientific community which is felt by some to be at odds with Christianity and therefore needs to be confronted as such; or where there are developments in science which appear to come to the aid of the Christian faith, maybe being perceived as providing corroborating evidence for some of its truth claims. But for the most part I will be discussing matters against a backcloth of what is still widely perceived—rightly or wrongly—as a basic conflict between science and religion.

Back to the Beginning

First of all it is necessary to go back a little and take a brief look at the contrast between pagan views of nature and the biblical view in order to see how it was this biblical outlook which not only provided the rational grounding upon which modern science could develop (as well as much of its motivation) but also positively laid upon man the *obligation* to engage in this enterprise, it being seen as part of the creation mandate to 'fill the earth and subdue it' (Gn. 1:28). Such a comparison and contrast between the two views will not only serve to show that at root there is no final conflict between science and the Christian faith, but should also sound a note of caution against running after pagan notions of nature which might be dressed in Christian guise.

The contrast between Greek views of nature and that of the Bible, together with the seminal influence of biblical Christianity on the development of modern science, has been well documented by Professor Hooykaas.[2] He summarizes the Greek understanding of

nature, going back through the Stoics, Aristotle, Plato and the Eleatic philosophers of the fifth century, under four points:

1. The Greeks did not admit creation; to them nature herself was eternal and uncreated. Nature worship was never totally removed from Greek thought, although it developed into a highly intellectualized form. Therefore it was simply 'not on' to pry too closely into her secrets—the legend of Prometheus captures the Greek understanding well. What is more, it was held that it was impossible to do anything against nature. Even for Plato in his *Timaios*, the demiurgos who shaped the world according to a definite plan had his hands tied in two important respects. First, he had to follow the model of eternal ideas, and secondly he had to put the stamp upon recalcitrant matter which he had not created.

2. The Greek conception of nature was not only rational, it was *rationalistic*. To the Greeks what was not rational was not real, and only what was real (that is, not subject to change) could be known. In nature logical necessity reigned. Therefore, mathematics with its ideal and unchangeable objects was the type of true knowledge. Astronomy was slightly inferior and the terrestrial sciences, where there is so much change, were hardly worth bothering with at all.

3. The disregard of matter led the Greek idealistic philosophers to undervalue observation and experiment. Plato, for example, mocked the Pythagoreans for their 'torturing instruments' in order to obtain knowledge.

4. The disregard of manual labour led not only to the undervaluing of experimentation but also to that of applied science. Aristotle was of the opinion that all useful things had already been invented.

The contrast with the biblical view on the other hand could not have been greater.

For one thing, the Bible spells freedom from any tyranny to 'nature', for even this is put under the dominion of man (cf. Psalms 8), so that in principle there is no aspect of creation which is a scientific 'no go' area. Experiment, technology and even art does not have to copy nature: they can actually go against it without any fear of reprisal.

According to the biblical account, God created according to his own sovereign free will so that one cannot say beforehand that certain things are impossible, he is not bound by what *we* would claim to be 'objective reason'. God has established rules in his creation, and it is by humble investigation that we are to discover the extent to which they are conformable to our reason.

What God has created he pronounced good, so that the study of material nature is a religious duty; matter is not to be looked down upon. Furthermore, manual labour is not some inferior activity: God instituted it and he himself did not shrink from becoming a carpenter's son.

Hooykaas puts the contrast as follows:

> The Bible knows nothing of 'Nature' but only knows of 'creatures' who are absolutely dependent upon their origin and existence upon the will of God. Consequently, the natural world is admired as God's work and as evidence of its Creator, but is never adored. Nature can arouse in man a feeling of awe but this is conquered by the knowledge that man is God's fellow worker who shares with Him the rule of the fellow creatures, the 'dominion over the fish of the sea and the fowl of the air. . . .' Thus, in total contrast to Pagan religion, nature is not a deity to be feared and worshipped, but a work of God to be admired, studied and managed. In the Bible, God and nature are no longer both opposed to man, but God and man together confront nature.[3]

One cannot over-emphasize the radical and liberating effect of this biblical outlook. Now, science becomes an activity which is actually *pleasing* to God. Obedience to the truth—what you find by observation and experiment—becomes central, so that one is no longer bound by preconceived ideas of what can or cannot be the case: to put it crudely, if you want to know what a thing is like—go and look. Science could be seen as part of Christian charity, a duty whereby the findings of science could be used to benefit one's fellow man. We see, for instance, in the works of Francis Bacon the ideal of science being used in man's service, and so he concludes his preface to his *Historia Naturalis* with the prayer:

> May God, the Founder, Preserver and Renewer of the Universe, in His love and compassion to men, protect the work both in its ascent to his glory and its descent to the good of Man, through His only Son, God-with-us.

Certainly, as Bacon himself stressed, such activity was to be done in a spirit of humility—humility before God and the creation as he has made it. Also, as we see in Newton, the founders of the Royal Society and the Puritans, men like John Wilkins, (Cromwell's brother-in-law), whatever is done is to the 'glory of God'. Thus it was within the milieu of Protestant Christianity that modern science was launched.

Why the suspicion?

Given that the roots of modern science extend deep into the rich soil of biblical Christianity, why the suspicion—in the popular mind at least—that somehow science and Christianity, far from being the best of brothers, are the worst of enemies? Why do we still need apologetic talks such as 'Science *versus* Religion'? Why, in spite of the sterling work of bodies like Christians in Science and the Victoria Institute, does this perception of science being at odds with the Christian faith still persist? A number of reasons can be adduced, but let me mention just two:

First of all there has been plain mischief-making by some notable scientists who make no pretence that they have a particular axe to grind, and usually a humanistic one at that; men like Sir Julian Huxley, G.G. Simpson, Jacques Monod, B.F. Skinner, Francis Crick, to name but a few. Some of these men, with access to the media, have propounded world-views which are decidedly at odds with Christianity and have given the appearance that such philosophies are the product of science itself. And so one can forgive the unwary reader or viewer for thinking that it must be a case of either/or—either modern science or antiquated Christianity. Certainly, as we shall see, there is an either/or situation, but it is not in these terms.

Secondly, we must admit to the feebleness of some of our Christian apologetics in this area which have tended to foster the idea that whatever science is related to, it certainly is not the Christian faith. There have been those who, with good intentions, have employed bad arguments. The classical instance of this is the celebrated debate at the Oxford meeting of the British Association following the publication of Darwin's *Origin of Species*, between T.H. Huxley and Bishop 'Soapy' Sam Wilberforce. I think that Huxley's reply to the Bishop in which he demolished his argument as a piece of ignorant and 'aimless rhetoric' is certainly correct. Indeed, more or less from those days the picture of the churchman as the dogmatic, reactionary ignoramus, over and against the brave scientist who is open-minded, rational and willing to 'boldly go where no man has been before' (yes, even *Star Trek* has done its work in perpetuating this idea!), has persisted up to the present time.

But in spite of the caricatures, we must admit that there is more than a grain of truth in this. Later I hope to give some more modern day examples where, from men whom I admire and to whom I owe much, there has come rhetoric and faulty thinking which has not really served the cause of Christ and truth—men like Francis Schaeffer, C.S. Lewis, and more recently Professor Oliver O'Donovan.

Putting the Cards on the Table.

Let me make my theological position clear so that the reader might know from which direction I am coming. I stand within the tradition generally referred to as the Reformed or Calvinist tradition. I also acknowledge my immense debt to the work of the late Professor Donald MacKay whose thinking is referred to on a number of occasions throughout this paper. This is said so that when criticisms are made of other positions, they are made as it were from 'within the family'.

So, what are some of the areas of science and religion which need to be approached with some caution? Let me suggest five such areas:

1. Where there is less than a full-rounded appreciation of what science is and its limits

I suppose that the commonly held view of the way by which scientific investigation and acquisition of knowledge proceeds is along the lines proposed by Francis Bacon—generally referred to as the 'scientific method'. Ideally this can be set out in the form of six steps:[4]

1. Gather data.
2. Formulate a general rule (hypothesis) according to the data.
3. Derive predictions from the hypothesis.
4. Check the predictions by making experiments.
5. If the predictions are true, then give the hypothesis the provisional status of a law (theory).
6. If the predictions are false, return to step 1 and attempt to derive another hypothesis.

Underlying the scientific method are the following assumptions:

1. Data are hard facts and beyond dispute.
2. Hypotheses arise from seeing some sort of pattern in the data and making an inductive generalization from them. This maintains that all cases fit the pattern.
3. Predictions from the hypothesis are derived by simple deduction from the hypothesis itself.
4. Discarding or retaining a hypothesis is a simple matter, depending upon whether additional experimental data support it.
5. Confirmed hypotheses are simply added to a long line of existing general laws. Progress in science is made by making such additions to the list. This is what Professor Hilary Putnam of Harvard calls the 'treasure store' approach to science.

This is the way many 'lay' people would conceive of science operating; and of course there is some truth and validity in this approach, although as pointed out earlier, the steps outlined are very much idealized.

In 1962, however, a book was published which was to cast considerable doubt upon this conception of scientific methodology—*The Structure of Scientific Revolutions* by Thomas Kuhn.[5] He argued that progress in science does not take place in this step-by-step approach. Research always takes place against the background of assumptions and convictions produced by previously existing science, so that to a certain extent, what actually count as data will be dependent upon the particular disciplinary matrix in which the investigative scientist operates. This disciplinary matrix (what Kuhn calls a 'paradigm') is made up of the scientific community to which one belongs.

Without going into detail regarding Kuhn's work which has been adequately critiqued elsewhere[6], it might be helpful to outline the counter-presuppositions underlying his thesis in contrast to the Baconian method:

1. There are never hard data. All data are theory laden. It is presupposed that things are organized in a certain way which is compatible with the way science is organized at the time.

2. Hypotheses do not arise in a vacuum: they arise out of the combined influence of the paradigm as a whole.

3. It is not possible to deduce a prediction from an isolated hypothesis, it is also dependent upon an existing body of theories which specify how it is to relate to any experimental set up.

4. Discarding an hypothesis is rarely an easy affair. Sifting an invalid hypothesis from a cluster of valid ones can be a subtle business.

5. Advance in science does not take place by piece-meal additions: sometimes 'revolutions' occur when a whole body of knowledge is recast.

Kuhn argues that there are, as it were, three stages of development in a particular scientific field: 1. Immature science, where the parameters are poorly defined and there is dispute between workers as to what are the relevant data. 2. Mature science, in which advances are made and a fundamental theory is proposed which becomes the 'exemplar' for others and acts as an organizing principle. This is characterized as a period of problem solving. 3. Extraordinary science, which leads to scientific revolutions. Here particular anomalies cannot be ignored and indeed fall into a pattern of their own. Consequently more energy is devoted to working on these which leads to people producing alternatives to the established disciplinary matrix. Traditional ideas become increasingly challenged and a new paradigm more fruitful than the old is produced which accounts for the anomalies. The most well-known example of this is the 'revolution' from Newtonian physics to Einsteinian physics and now the 'new' physics.

Working with these two understandings of science, where have Christians gone astray? Let us look at two examples where this has occurred.

First, by some creationists who, working with the first understanding of the scientific method, have claimed that evolutionary science is not 'true science'.[7] For example, one creationist writes:

> . . . it is manifestly impossible to prove scientifically whether evolution took place or not . . . the events are non-reproducible and, therefore, not legitimately subject to analysis by means of the so-called 'scientific method.[8]

Although repeatability is important in science it is by no means the sole or sufficient criterion by which it is distinguished from non-science. Here there is a failure being made to distinguish between *nomothetic science*—aiming to establish laws describing infinitely

repeatable events, and *ideographic* science—concerned with understanding and explaining unique events like the origin of species.

Some creationists have gone further by invoking Karl Popper's 'principle of falsification' which stresses that a theory must be testable in the sense that conditions must be specified under which it could be demonstrated as false. It is claimed by some creationists that according to this principle the theory of evolution is not open to falsification. However, there are two problems for the creationist at this point. The first is that it is inconsistent with what they are trying to do, namely, to demonstrate that the theory of evolution *is* false. Secondly, one must ask that if what is maintained about falsification holds, then where does this leave creation science, which, by its own admission, is non-falsifiable? Does this mean that it is a non-science or pseudo-science? It looks like the creationist is hoist with his own petard.

There are other Christians, who perhaps because of a misreading of Kuhn, have seized hold of the belief that objectivity in science is some sort of 'myth'. Thus one Christian writer can say: 'The social sciences . . . give lie to any simple model of value-free objectivity in science'.[9] It is then concluded that since value-free knowledge cannot be obtained in any pure form, then the whole *concept* of value-free knowledge is somehow meaningless—so it is one in the eye for the hard-nosed scientist!

Nevertheless such reasoning is misplaced. Because we cannot obtain precise detailed knowledge, say, of a D.N.A. molecule, this does not mean that the molecule is a 'myth'. Certainly the pursuit of knowledge, and how we use that knowledge, will to a lesser or greater extent be influenced by questions of value—what to do, how to do it and when. But it simply does not logically follow that the concept of value-free knowledge is a 'myth'.

On a purely day-to-day basis there is a growing amount of evidence that in so many ways science has 'got it right'—every time we get into a car or cross a bridge or switch on the television set. In other words what has been proposed as scientific knowledge actually accords with reality—there is something 'out there' with which we have to reckon whether we like it or not. Just as the terrain must be allowed to determine what a map-maker will show, so it is with the data that the scientist handles, he in his own way being a kind of map-maker. But to listen to some of the more extreme advocates of the 'myth of objectivity'.[10] one would think that it was our ideas which shaped reality rather than the other way round.

It is not incidental either that those who dispute the *ideal* of objective knowledge mostly come from the social sciences and not the physical sciences, and one can see why. Here there is an inherent problem in gaining access to objective knowledge because in the main they are dealing with *people*. Thus, for example, the moment a

survey is conducted in which a 'representative unreflective member of the public' is interviewed, the subject has so been 'shaped' by the questions that he ceases to be 'representative and unreflective'—he was until the interviewer stepped in!

The vital point which must be maintained is that objectivity in science is commendable as an ideal: the scientist needs to check himself against bias and ensure that what is presented is open for others to check and double check. This, of course, is very much in line with biblical thinking about the nature of the world and of God who, after all, is the one who *does* know what is objectively true.

If some Christians attack science on the basis of a faulty conception of what science is and what it means to be objective, others do so by claiming that there are areas in which it is neither possible nor permissible for a scientist *qua* scientist to enter. Again we need to be clear about what is being claimed. To suggest that there is a territorial limitation, so that for instance 'religion' lies outside the proper study of science because it is a 'spiritual matter', is wide of the mark. The fact is that science can and does study 'religion', for example the psychology of conversion. Indeed, there is much that the Christian could learn from such findings, particularly concerning the dangers of psychological manipulation in preaching. Would it not be more appropriate to think in terms of *methodological* and *conceptual* limitations in science? Thus, the scientific method is fine if you want to obtain a certain type of knowledge. But it is next to useless if you want to obtain other types of knowledge such as personal knowledge (for example, the love of another). A failure to recognize this limitation was the gaping error of logical positivism. For the scientist, detachment is an ideal, but for that principle to be carried over into some other areas of life would not produce more knowledge but less.

What is more, there is a conceptual limitation to science in that while a description of a phenomenon may be given by a scientist which might be complete within its own terms of reference, this does not rule out other levels of description which are logically 'higher' and complementary. A chemist might give an exhaustive description of the contents of this page in terms of colour pigments and cellulose composition without mentioning what to me is the most important description of all—what the essay is all about! It might therefore be suggested that *in principle* there is no area in life which is *ipso facto* ruled out for scientific investigation, although there may be good practical and ethical reasons why such investigations should not be carried out.

Sometimes the objection is framed in terms of the scientist wanting to 'play God'. But what does this mean? If it is a criticism of an attitude of arrogance and scant disregard of the consequences of research, motivated out of personal ambition, then the point can be taken; but if it is the suggestion that there are certain areas, say of

human functioning at the genetic or brain level, into which in principle the scientist should not enter because it is 'interfering with nature', then it is misplaced. For if we are to take the Bible's teaching seriously concerning our responsible stewardship before God, then in some circumstances *not* to act would be morally reprehensible (Mt. 25:14–30 *passim*). Far from 'playing God', the scientist in his investigations may be doing no more than being an obedient steward before his Creator.

2. A failure to distinguish clearly between legitimate scientific methods and conclusions, and an illegitimate world-view which is parasitic upon science

There is little doubt that some highly extravagant claims have been made in the name of 'science' with an anti-Christian slant, which, upon closer inspection, have more to do with a world-view which by sleight of hand has been linked to science and all the prestige it carries in the minds of some. The most obvious example is that of evolution*ism* which some Christians think is indistinguishable from the theory of evolution itself. Consequently, some adopt the tactic of trying to show that the scientific theory is false in the hope that any atheistic philosophy built upon it will come tumbling down.

But this is to concede too much too soon. It is far from certain (given that one cannot derive an 'ought' from what 'is') that evolutionism as a world-view follows from the theory of evolution. As a philosophy, evolutionism leaves much to be desired. Indeed, as some Christians have argued, the theory of evolution is just as congruous with a biblical perspective, perhaps even more so than with an atheistic one.

This failure to tease out sufficiently scientific investigation and any accompanying philosophical views shows itself in other ways too.

In Francis Schaeffer's booklet '*Back to Freedom and Dignity*'[11], he engages in a wide-ranging attack upon the teachings of Jacques Monod, B.F. Skinner and Francis Crick, as well as expressing concern about research on the human brain. He admits that much of what these men teach arises not so much out of their scientific research but their philosophies, which in most cases are reductionist—that is, man is understood solely in terms of his constituent parts and nothing more.

Unfortunately, instead of Schaeffer attacking the reductionist philosophy and demonstrating that it is philosophically bankrupt, he uses rhetoric to attack scientific practices which, while needing the correct ethical safeguards, may in principle be regarded as legitimate methods of enquiry. He writes:

> While we would add that man is more than a brain, our brain is a good brain. God made the human brain. But the fact is that man is fooling with it. Electrical stimulation of the brain, genetic engineering, chemicals in the drinking water—the human brain will be drastically changed.[12]

Certainly to 'fool' with anything as delicate as the brain is reprehensible, but who is talking about 'fooling'? To speak of our brain being 'good' because God 'made it' needs some qualification in the light of Christian belief in the fallen human condition. Surely there are instances when the brain is evidently far from 'good' (schizophrenia for example). If the brain in such circumstances *could* be improved (again with the appropriate safeguards) then it would be incumbent upon us to *do* so.

Also Schaeffer fails to make the important distinction between physical determinism and metaphysical determinism: 'When one accepts the presuppositions of determinism, whether chemical or psychological, moral values disappear'.[13] But as Donald MacKay has shown[14] even if one were to grant physical determinism, metaphysical determinism (the denial of the reality of human freedom and responsibility) does not logically follow from it. We need to make sure that our criticisms are aimed at the right targets.

3. A failure to appreciate the relationship between science and hermeneutics

How are we to understand the relationship between the findings of science and biblical interpretation? Is it a matter of science (and for that moment, we include archaeology) augmenting or verifying the biblical revelation? Certainly archeology provides helpful background material, enabling us to tackle some of the historical and cultural questions with which the Bible presents us. But given the sufficiency of Scripture for the purpose for which it was divinely inspired, namely, to teach, rebuke, correct and train in righteousness so that we might become wise with regards to salvation (2 Tim. 3:16), are these the two primary alternatives set before us? Could it not be that when one wants to ask more sophisticated questions beyond, as it were, the 'spiritual' meaning of the passage (making us wise unto salvation etc.), what the facts of science, as distinct from speculation, provide us with is a check or corrective to ensure that we are looking at the passage from the right angle. In other words, science might perform a negative function in eliminating faulty interpretations of the Bible.

For example, Psalm 93 was taken by some teachers in the church as evidence against the Copernican claim that the earth revolved around the sun. It is not sufficient simply to retort that such teachers were more influenced by Aristotle than the Bible and this accounted for their error; the fact remains that divinely inspired Scripture was

adduced in supporting their case. We now know that they were wrong. Does this cast doubt upon the divine authority or trustworthiness of Scripture? Not at all. But it does mean that the way such teachers *interpreted* Scripture was awry. In this case science provided a corrective as well as an incentive to go back and put right the hermeneutics. The God-given meaning of Psalm 93 had not been altered at all; indeed, in some ways it was perhaps highlighted and brought into sharper focus by this scientific discovery.

Just in case there are those who think that this approach is a novel one, it is worth reminding ourselves that this was the hermeneutic of John Calvin. He held that the religious (what I called 'spiritual') message of the Bible is accessible to everyone and that God accommodated himself to our infirmities in the writing of Scripture, so that Moses 'adapted his writing to common usage'. Thus Hooykaas comments:

> It is to Calvin's credit that, though recognising the discrepancy between the scientific world system of his day and the biblical text, he does not repudiate the results of scientific research on that account.[15]

The Puritan John Wilkins, while making much of Calvin's commentaries on the Psalms and Genesis, stressed a non-literalist interpretation of Scripture when touching on scientific matters. One may therefore want to raise the question: Who is standing much closer to the hermeneutical tradition of the Reformers on the matter of the interpretation of Genesis 1–3: the creationists or the theistic evolutionists?

4. The problem of romance, nature and paganism

We live in an age in which 'science bashing' is the rage. One reaction to what has been perceived as the abuses of technology is to romanticize nature so that if only we could go back to nature and conform to her designs, then many of our present problems would be alleviated. But far from this being a biblical idea, as we have seen, it is a strongly Greek and pagan one reminiscent of the Greek belief in a 'Golden Age'. One no less than C.S. Lewis fell into this trap in his book *The Abolition of Man*[16] in which he protested against Baconian technology, claiming that both magic and applied science share a common ground in that they both try to subdue reality to the wishes of man. He condemned human dominion over nature as being *hubris* and praised the ancient wisdom of conforming to nature.[17] But this is a Stoic conception and not a biblical one. Interestingly enough, Lewis did not adduce Scriptural support for his position! Hooykaas helpfully comments:

> It is true that the results of our dominion over nature have been unhealthy in many cases; the powerful river of modern science and

> technology has often caused disastrous inundations. But by comparison the contemplative, almost mediaeval vision that is offered as an alternative would be a stagnant pool.[18]

More recently this same 'back to nature', semi-Stoical view has surfaced in the writings of Oliver O'Donovan in his book *Begotten or Made?*[19] which explores developments in reproductive technology such as *in vitro* fertilization. O'Donovan argues that technological interference with the 'natural' course of events in procreation (begetting) is expressive of western man's determination to 'free himself from the necessities imposed upon him by religion, society and nature.'[20] This 'project of human self-mastery' is identified with attempts to 'fashion the future' in contrast to simply 'acting together', an action being defined as 'an event which has a beginning and an end'; and 'when one completes what one is doing, one launches it, as it were, upon the stream of history. What happens to it then is out of one's control.'[21]

> . . . to act well, then requires faith in divine providence . . . but to 'fashion the future' is to refuse to let one's act go. It is to strive to extend one's control even to directing the stream of history . . . to assume a totalistic responsibility for what will happen.[22]

The language is impressive but the reasoning is flawed. Would it be at all responsible or a denial of belief in 'divine providence' if a Christian helicopter pilot entered his aircraft (a product of technology), started the engine, and when in flight decided to 'act well' by 'letting go'? Of course not. O'Donovan appears to be focusing upon one type of action at the expense of another, *viz.* man acting in open defiance of God (which is reprehensible) and man acting as a responsible steward before God (which is commendable). The latter type of action, far from requiring a 'letting go', demands that all the resources and gifts which God has given (*through* divine providence) be used in a responsible manner. It is ludicrously wide of the mark broadly to claim that all such attempts to 'fashion the future' arise out of man's rebellion. What about controlling disease, averting floods, and saving the ozone layer?

O'Donovan does say that 'Christians should . . . confess their faith in the natural order as the good creation of God. To do this is to acknowledge that there are limits to the employment of technique' and that these limits are taught to us by 'the understanding of what God has made, and by a discovery that it is complete, whole and satisfying'.[23] But what sort of limits are envisaged—ethical or territorial? Again one must ask 'What of the fall?'. The world has disorder too and is in so many ways far from 'satisfying'. It is a world which requires control and subduing as our Lord by his example showed us.

With more concern rightly being shown over 'green issues' and with the rise of new cults like the 'New Age' movement, Christians of all people need to resist any enticement back to paganism, even if it is wrapped up in Christian terminology. We need to set our feet squarely upon the rock of Scripture and the world-view that it promotes—a view which sees the world as God's creation and man as a responsible steward and not a passive participant.

5. The need to guard against an unhealthy fusion of science and theology

The most obvious example of an unhealthy fusion of science and religion is that of Tielhard de Chardin's work, an amalgam of evolutionary science, Thomism and pantheism. But more recently, with some remarkable developments in physics, there are those who are attempting to bring science and the Christian faith together in such a way that it is hoped science will provide insight into our understanding of theology. The most notable proponent of such an approach is Professor John Polkinghorne. In his *Science and Creation*[24], Polkinghorne is concerned with exploring a revised natural theology. He fails, however, to make the important distinction between natural *theology* and natural *revelation*. He cites Scriptural passages like Rom. 1:20 as encouraging an attempt at natural theology, but at most such passages legitimize belief in natural revelation which is a far cry from the natural theologies of Aquinas or Swinburne, the difference lying in their epistemologies.

In *Science and Providence*[25] Polkinghorne states that 'The modern understanding of the physical process is indeed helpful in the consideration of God's possible action in the world' and that 'recent advances in science point to an openness and flexibility within the physical process'. He claims that 'the causal joint of divine action is located in those regimes where what we call chance has a rôle to play' (chance being understood in its technical and not popular sense). But not only is this a too restrictive notion of God's interaction with the world understood in terms of providence or miracles (he suggests the model of 'watchmaker' be replaced by that of 'divine juggler'), the theological price paid is too high, namely, a dilution of the biblical revelation of the sovereignty of God. At one point[26] Polkinghorne mistakenly analogizes the omnipotence of God with his omniscience, so, it is argued, that just as God cannot change the past he cannot know the future, except by making highly informed conjectures.

While the 'Book of nature' and the 'Book of scripture' need to be related, they should not be conflated. Still by far the best course to follow is the Reformed principle of the Bible providing the rationale, motivation and epistemological basis for science, but with theology and science being kept conceptually distinct—the former providing the higher category of meaning for the latter.

Conclusion

In his book *The Turn of the Tide*[27], Professor Keith Ward devotes a chapter to science and religion under the title 'The Phantom Battle', which admirably sums up the contention of this paper, that in so many ways the alleged 'conflict' between science and Christianity is more apparent than real. Questions of application still remain; ethical considerations which are inextricably bound up with religious convictions need constant review. Christians should have their critical guard raised in distinguishing good arguments from bad, and extravagant claims (in the name of 'science' or 'Christiantity') from more realistic and modest ones which accord with Scripture.

We conclude with one more insightful remark by Hooykaas:

> We have to steer a middle course between an archaistic reactionary defence of pagan-nature worship in Christian disguise, and the progressive *hubris* of modern scientism: between a feeble submission to nature, and a belief in infinite progress achievable through pulling ourselves up by our bootlaces . . .[28]

Such a 'middle course' can only be charted if an attitude of humility is cultivated between the scientific investigator and him who said 'without me you can do nothing'.

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NOTES

1 A paper originally given to ministers and students at Elim Bible College, Nantwich, December 1989.
2 R. Hooykaas, *Religion and The Rise of Modern Science* (Eerdmans, 1974.) Also, Hooykaas, *The Christian Approach in Teaching Science*, (Tyndale Press, 1966).
3 Hooykaas, *Religion and the Rise of Modern Science*, p. 8.
4 This summary is helpfully expounded by Vern Poythress in his excellent book, *Science and Hermeneutics* (Apollos, 1988).
5 T. Kuhn, *The Structure of Scientific Revolutions*, (Chicago Press, 1962).
6 See Del Ratzsch, *Philosophy of Science*, Chapter 3, (I.V.P., 1986).
7 For an excellent review of the creationists' claims see Poole and Wenham, *Creation or Evolution—a False Antithesis?* (Latimer Studies 23/24, 1987).
8 H.M. Morris, *The Twilight of Evolution*, (Baker Book House, 1963), p. 29.
9 Cited by D.M. MacKay in his essay 'Objectivity as a Christian Value', in P. Helm (Ed.), *Objective Knowledge*, (I.V.P., 1987), p. 26.
10 For example David Bloor, who is not a Christian, and one of the leading advocates of what has become known as 'The Edinburgh Strong Programme'.
11 F. Schaeffer, *Back to Freedom and Dignity*, (Hodder & Stoughton, 1973).
12 *Ibid.*, p. 29.
13 *Ibid.*, p. 27.
14 See D.M. MacKay 'Man as a Mechanism', in *The Open mind*', M. Tinker (Ed.), (I.V.P. 1988), p. 49.
15 Hooykaas, *Ibid.*, p. 120.
16 C.S. Lewis, *The Abolition of Man*, (Fount, 1978).

17 *Ibid.*, Chapter 3.
18 *Loc. cit.* p. 74.
19 Oliver O'Donovan, *Begotten or Made*? (Oxford, 1984).
20 *Ibid.*, p. 6.
21 *Ibid.*, p. 7.
22 *Ibid.*, p. 8.
23 *Ibid.*, p. 12.
24 J. Polkinghorne, *Science and Creation*, (S.P.C.K., 1988).
25 J. Polkinghorne, *Science and Providence*, (S.P.C.K., 1989).
26 *Ibid.*, p. 79.
27 Keith Ward, *The Turn of the Tide*, (B.B.C. 1986).
28 Hooykaas, *The Christian Approach in Teaching Science*, p. 19.